

Jamie L. Whitten Plant Materials Center

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Technical Note

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**Cover Crops and C-factors for
Conservation Tilled Sweetpotato**

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Sweetpotato is an important part of Mississippi's agricultural economy even though it is produced on a smaller scale than other row crops such as cotton, corn, and soybean. Approximately six thousand acres are planted to sweetpotato each year in the state. In 1994, average yield was 170 cwt per acre with sales receipts totaling \$11.8 million (Mississippi Dept. Agric. Commerce). Mississippi ranks fourth nationally in sweetpotato production.

Like cotton, sweetpotato is normally planted into a seedbed that has been tilled several times. Producers may make two-three passes with a disk-bedder to increase row height. Row orientation may even be up and down the slope. After transplanting and before the vines start to run the fields are cultivated twice. Canopy cover may reach 100% sixty days after planting but little residue remains after harvest due to the shredding of the plants prior to harvest and the soil disturbance at harvest. Soil loss on some soils may be as high as 21 tons per acre/year (Henry soil, 2% slope, 400 foot length, no mechanical conservation practices).

Crimson clover, hairy vetch, rye, or wheat when planted as a cover crop can help reduce soil erosion in fields planted to sweetpotato. For best results some tillage needs to be performed in the fall such as light disking and hipping to reshape the seedbed for transplanting sweetpotato slips in the spring. Cover crop seeding rates are given in Table 1.

Table 1. Cover crop seeding rates

	lb seed/acre	
Cover crop	drill	broadcast
Crimson clover	12	20
Hairy vetch	20	30
Rye	60	90
Wheat	60	90

To ensure a good stand, cover crops should be planted by October. Crimson clover, rye, and wheat will provide more fall growth than hairy vetch. Phosphorus and potassium fertilizer can be applied during the fall for both the cover crop and succeeding sweetpotato crop. Rye and wheat may need 25 lb N/acre at planting. Hairy vetch produces most of its growth in the spring so the producer should not be disappointed to see weak stands of vetch in the fall.

Cover crops should be killed in mid-April with a foliar applied chemical(s). Excessive growth by the cover crops can interfere with no-till transplanting of the sweetpotato slips. Hairy vetch and rye with their abundant spring growth and wheat after it has jointed may not be killed by single chemical applications. If a cover crop is to be turned under, wait at least two weeks before transplanting due to adverse soil conditions that may damage the slips.

Hairy vetch and crimson clover may fix enough N (50 lb/acre) for sweetpotato depending on the dry matter yield and N concentration. This may help offset the seeding costs of these cover crops as commercial fertilizer prices increase.

Wheat and rye planted in fields sprayed with Command herbicide may be severely damaged. Other preemergence and postemergence herbicides used for sweetpotato production do not affect the grass or legume cover crops when applied at the recommended stage of weed growth.

C-factors have been calculated for each cropping system. Data were obtained from a study conducted at the Jamie L. Whitten Plant Materials Center where canopy cover at various stages of growth and dry matter yields were obtained. C-factors are given in Table 2.

Table 2. Tillage system C-factors.

Tillage system	C-factor
1. Seedbed preparation October 15, 2x disk, 1x chisel, hip 2x, harrow, plant crimson clover - April 15 burndown, no-till transplant June 1. no cultivation.	.3275
2. Same as No. 1 except plant hairy vetch.	.3530
3. Same as No. 1 except plant rye.	.2784
4. Same as No. 1 except plant wheat.	.2722
5. Same as No. 1 except no cover crop planted.	.3807
6. No fall tillage. Native winter cover. Seedbed preparation April 15, 2x disk, 1x chisel, 2x hip, harrow, plant June 1. 2x cultivate .	4400

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